Debris Estimating

The determination of the quantity and type of debris is critical to debris management. Debris contracting, the management of Debris Management Sites and the possible need for State and Federal Resources will require a reasonably accurate estimate of debris quantities.

Debris estimating is normally used in a post-disaster situation to establish a reasonable estimate of the actual debris quantities and type. These estimates will be used to determine a community's actual capability to handle the situation. In addition, debris estimates will be used to determine the actual need for Debris Management Sites, contracts and landfill space requirements.

Estimating Debris Piles

There are many things to consider when estimating debris. The first consideration is the type of debris, for example:

- vegetative
- construction and demolition
- mobile homes
- a mix of different things

You will need to identify handling requirements, for example, if you will need to separate the debris.

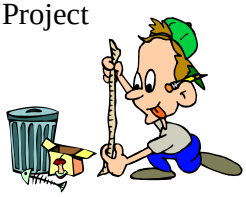
Ensure that necessary equipment is available, including:

- Digital (preferred) or Polaroid camera
- 100-foot tape or roll-off wheel
- Calculator, notepad, sketchpad
- Maps of area
- Aerial photographs (preferably before and after the disaster)
- Dedicated vehicle and mobile communications

Debris estimating can be expedited by dividing the community into sectors based on any of the following:

- Type of debris: woody, mixed or construction material
- Location of debris: residential, commercial, or industrial
- Land use: rural or urban

Remember that however you define your area, you must be consistent with your system and keep detailed notes on how, where and what method you used for your estimates. These notes must be well documented and maintained for future reference. For Presidentially declared disasters, this information will be incorporated on the Project Worksheet.



Reminders

The following reminders may be of assistance when performing debris estimates:

- Look beyond the curb into side and backyards and at condition of the homes. Most debris in these areas will eventually move to the curb.
- Wet storms will produce more personal property debris (household furnishings, clothing, rugs, etc.) if roofs are blown away
- Look for hanging debris such as broken limbs after an ice storm
- Flood-deposited sediment may be compacted in place. Volume may increase as debris is picked up and moved.
- Using aerial photographs in combination with ground measurements will help determine if there are any voids in the middle of large debris piles
- Treat debris pile as a cube, not a cone, when performing estimates

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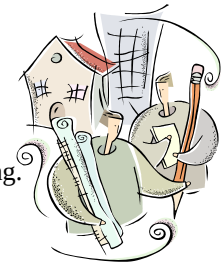
Estimating Formulas

Buildings

The following information will assist you in determining the amount of debris from destroyed buildings, homes and debris piles:

One-story building formula:
L'xW'xH' = ___ CY x .33 = ___ CY
27

One-story house formula:
L'xW'x8' = ____ CY x 0.33 = ___ CY of debris
27



Note: The 0.33 factor accounts for the "air space" in the house or building.

Outbuildings
L'xW'xH'x.033 = ___CY of debris
27'

Mobile homes formula:
L'xW'xH' = ___CY
27

Length =L, Width = W, and Height = H. All measurements are in "feet".

Note: The 0.33 factor is not applied to mobile home calculations due to their compact construction. The 27 factor is the conversion factor from cubic feet to cubic yards.

Mobile Homes

Typical quantities for mobile homes:

- Single wide mobile home = 290 cy of debris
- Double wide mobile home = 415 cy of debris

Participants typically have a difficult time accepting these numbers because they are larger than the standard stick-built homes. This has to do with the wasted air space in the average stick-built home. In mobile homes there is very little wasted air space – every inch of the unit is used in storage; the walls are narrower, etc.

Note: These numbers were verified during Hurricane Floyd. The State of North Carolina demolished approximately 2,000 mobile homes following that flood.

Debris piles

L'xW'xH' = ___ CY
27

Additional Resources

- CalEMA Concept of Operations
- Debris Removal Flyer
- Private Property Debris Removal
- Debris Contracting Flyer
- Debris Forecasting Flyer
- Debris Management Plan Flyer
- CalEMA Debris Training Manual

Web Sites

www.calema.ca.gov
www.calrecycle.ca.gov
www.fema.gov

Got Questions?

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Regulations: *Title 19, Section 2900*
44 CFR, Section 206.224.
Stafford Act, Sections 403 & 407